



# MODS Overview and Project Management

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# MODS Introduction

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## Multi-Object Double Spectrograph

- High throughput
- Broad wavelength coverage: 320-1000nm
- Resolutions of  $10^3 - 10^4$
- Long-slit and multi-slit modes
- Imaging capability



# MODS Introduction

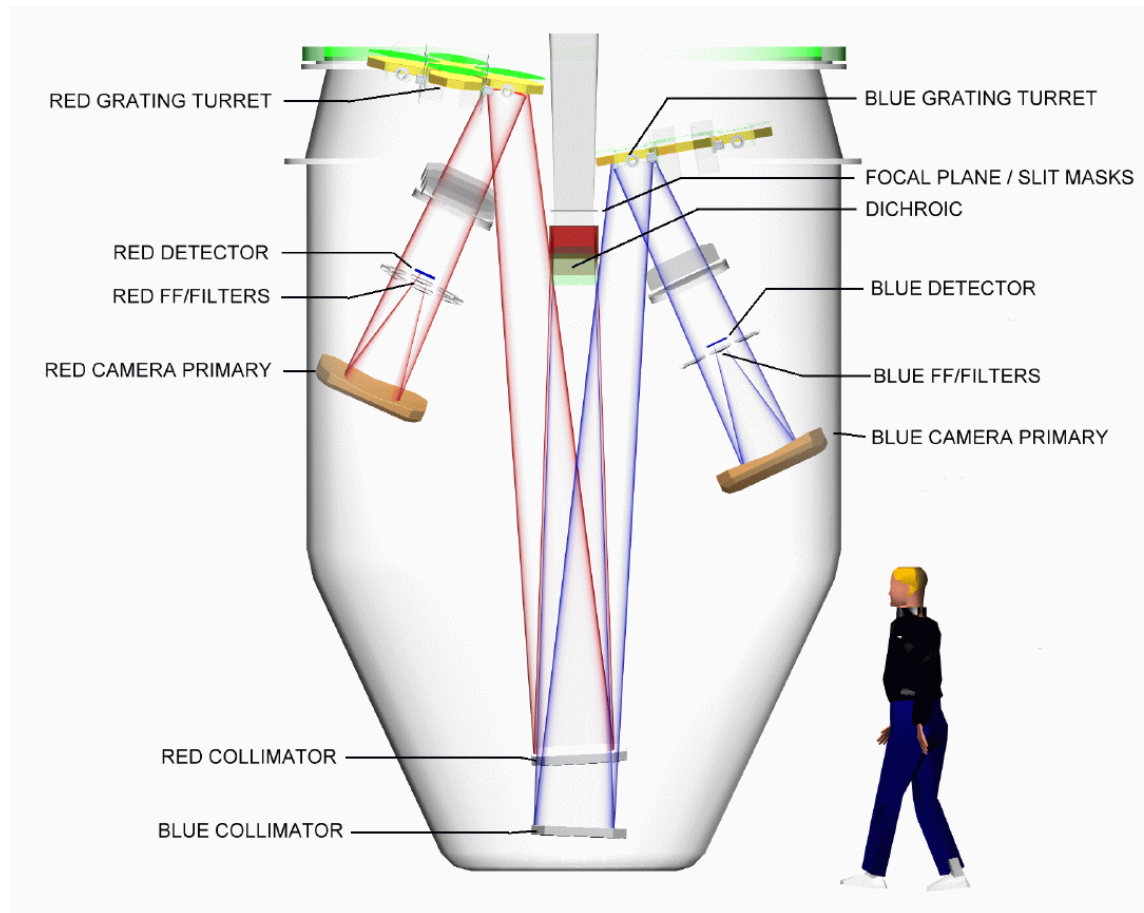
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## Design Philosophy

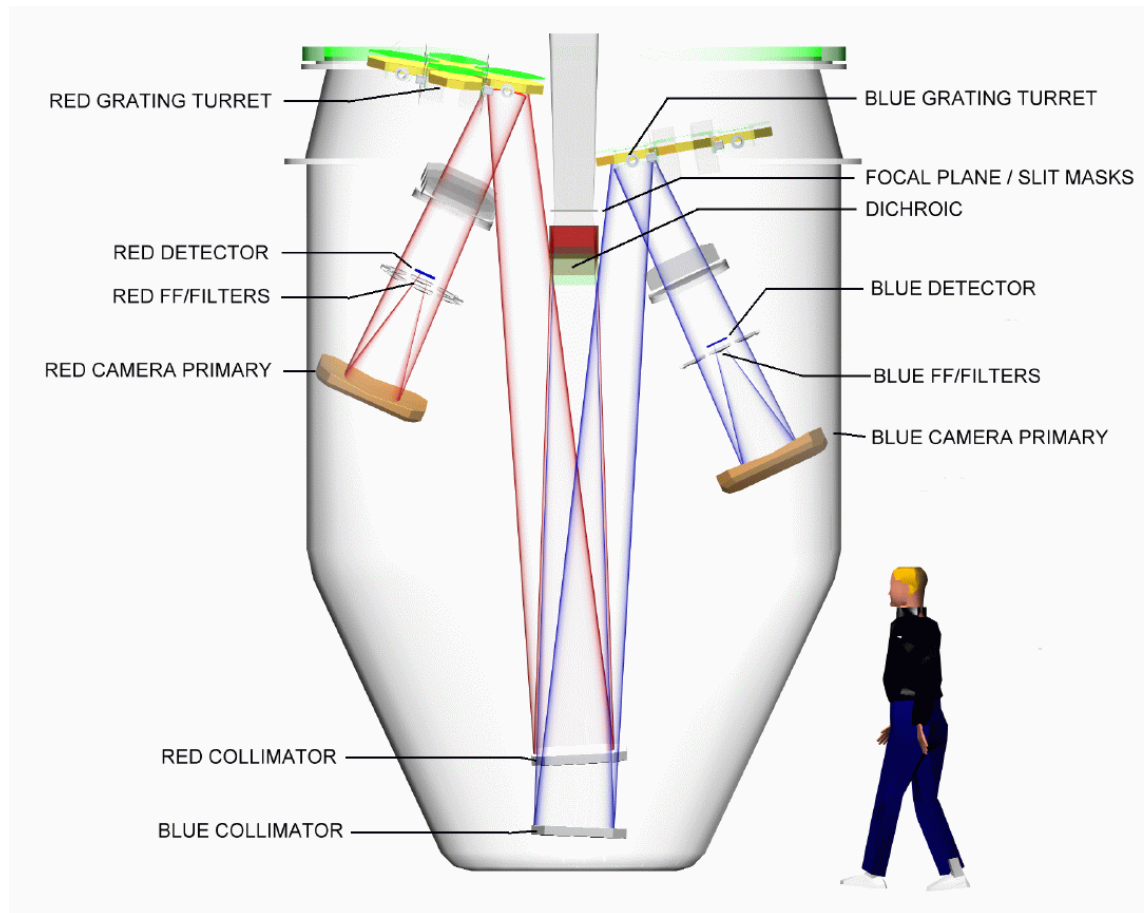
- Modular design
- Utilize successful approaches of previous OSU instruments
- Allow for future upgrades
- Control costs and work within available resources of personnel and cash

There are two!

# MODS #1



# MODS #2





# MODS General Properties

Each MODS channel can accommodate

- 4K × 8K CCD, 15 $\mu$ m pixels
- 3 gratings + imaging flat
- 8 filters

The two channels share a common focal plane

- 24 individual slit masks (long slit and multi-slit masks)

Modular design to permit future upgrades

- R=15000 cross-dispersed mode
- Adaptive Optics modes (1' FOV)
- Integral field mode
- ADC

# MODS Operating Modes

	Blue	Red
Range (nm)	300–600	500–1000
Mode	Spectral Resolution (0.6" slit, 4 pixels)	
Lo-Res	2000	2000
Hi-Res	8000	8000
Imaging	Filters	Filters

# MODS Progress

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Made substantial progress on

- Optics
  - Many optics delivered
  - Paul Byard
- Mechanical
  - Most mechanisms designed, fabricated, and tested
  - #1 Structure complete; #2 progressing well
  - Tom O'Brien and Mark Derwent
  - Hired Andy Krygier





# MODS Progress

- Software
  - Prototype systems well-developed
  - Hired Ray Gonzalez
  - Ray Gonzalez/Rick Pogge
- Image Motion Compensation System
  - Crucial for MODS operations
  - Convincing lab demonstrations
  - Jennifer Marshall will discuss during lab tours



# MODS Progress

- Detectors
  - First-light CCD delivered; 2nd expected soon
    - 4Kx4K, 15 $\mu$ m pixels
  - Begun working on definition of new, MODS-specific CCD
    - Larger format
    - New mask and foundry run
  - Bruce Atwood
- Instrument Electronics
  - Motor controllers selected and undergoing tests
  - Dan Pappalardo



# MODS Schedule

## Complete schedule renovation

- September 2004

## Improved schedule tracking

- Follows Navigator Management Partners' recommendations
  - Weekly progress reports from everyone
  - Generation of variance reports
  - Monitoring and revision of schedule as necessary
  - Plan major review on September 2005

## Current deployment schedule

- MODS1 in July 2006
- MODS2 in November 2007
- Darren DePoy